

encounter a single option at a time. The key decision is, therefore, whether or not this option is sufficiently valuable that it is worth engaging with or whether the environment is sufficiently rich that it would be better to continue searching for something better. The effort involved in making these different choices must also be considered. The anterior cingulate cortex carries three signals that are needed for such decisions – a representation of the value of any option that might be engaged with, a representation of the average value of alternatives in the current environment, and a representation of the cost of the actions. Considering the ecological context in which decisions arise also provides a new perspective on other signals in the anterior cingulate cortex, for example signals that are related to the encoding of risk.

THE NEUROECONOMICS OF SIMPLE CHOICE

Antonio Rangel, CalTech

Neuroeconomics seeks to characterize the computational and neurobiological basis of different types of decisions. This talk will discuss a series of studies designed to understand how the brain makes simple choices, such as whether to choose an apple or an orange, as well as the quality of the resulting decision. This includes understanding how the brain assigns value to stimuli at the time of choice, how values are compared to make a choice, how they induce the motor movements necessary to implement the choices, and how these basic processes extend to more complex choice situations.

THE NEUROECONOMICS OF EMOTION AND DECISIONS

Elizabeth Phelps, New York University

One popular theory of emotion and decision-making suggests that there are competing systems of emotion and reason that may drive choices. In contrast to this view, recent research in affective neuroscience has highlighted a modulatory role for emotion's influence on a range of cognitive functions, including perception, attention and memory. In this talk, I will outline how emotion's influence on decision-making may also best be captured as a modulation of the value computation. Specifically, I will present data suggesting that the emotional reaction to decision options or outcomes is linked to choice behavior, and how modifying emotional responses may change the choice. Finally, I will discuss the overlap in the neural systems of emotion and decision-making with circuits typically implicated in affective learning and emotion regulation.